REMARKS

This is responsive to the office action issued on March 28, 2003. By this Response, claims 1, 4, 13, 20, 22, 33 and 35 are amended, claims 21 and 34 are cancelled without prejudice, and claims 39 and 40 are newly presented. No new matter is introduced. Adequate support for the amendment can be found in, for example, Figs. 4 and 6-9, paragraphs 24-26, and 29-31, and Figs. 6 and 8. Claims 1-20, 22-33, 35-38 and 39-40 are active for examination.

The office action dated March 28, 2003 rejected claims 33-38 under 35 U.S.C. §102(b) as being anticipated by Nakamura (U.S. Patent No. 4,616,281), and claims 1-32 under 35 U.S.C. §103(a) as being unpatentable over Schroeder et al. (U.S. Patent No. 5,754,042) in view of Nakamura. The rejections are respectfully traversed in view of the amendment and remarks presented herein.

THE REJECTIONS OF CLAIMS 21 AND 34 ARE NOW MOOT

By this Response, claims 21 and 34 are cancelled without prejudice. Therefore, the rejections of claims 21 and 34 are not moot.

THE ANTICIPATION REJECTION OF CLAIMS 33 AND 35-38 IS TRAVERSED

Claims 33 and 35-38 were rejected as being anticipated by Nakamura. The anticipation rejection is respectfully traversed because Nakamura cannot support a *prima facie* case of anticipation.

A *prima facie* case of anticipation under 35 U.S.C. § 102 requires that a single prior art reference must disclose each and every element as set forth in the subject claim. *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

The identical invention must be shown in as complete detail as is contained in the ... claim. *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). Nakamura, however, does not teach every limitation of the claims.

In rejecting claims 33-38, the Office Action contended that Nakamura teaches every limitation of the claims. Applicants respectfully disagree.

Claim 33, as amended, recites:

> An apparatus to sense the speed of a moving member having a magnetic field, the apparatus comprising:
>
> at least a first set of runners and at least a second set of runners adjacent to the moving member, the first set of runners and the second set of runners configured as a Wheatstone bridge, the Wheatstone bridge configured to generate at least an output signal as the member moves and as a magnetic field associated with the member electrically influences at least one of the first and second set of runners;
>
> wherein the first set of runners is approximately perpendicular to the second set of runners.

Therefore, an apparatus according to claim 33 includes a first and second set of runners, wherein the first set of runners is approximately perpendicular to the second set of runners. See, for example, Fig. 4 and paragraphs 25 and 26. This feature was originally described in claim 34 (now cancelled).

In contrast, Nakamura is related to using magnetoresistive elements for detecting a relative displacement of the magnetoresistive elements and a magnetic record medium having a magnetic track. Nakamura specifically describes that the magnetoresistive elements "are arranged side by side in a direction perpendicular to the direction of the magnetization pattern." (See, for example, Abstract; Fig. 4 and col. 4, ln.66-col. 5, ln. 4; Fig. 7 and col. 5, lns. 30-39; and col. 6, lns. 9-13.)

In addition, although Nakamura may have described using two sets of magnetoresistive elements, 63a, 63b and 64a, 64b, as shown in Fig. 7, the magnetoresistive elements 63a, 63b and 64a, 64b are parallel, not perpendicular, to each other. Therefore, Nakamura does not teach that

"the first set of runners is approximately perpendicular to the second set of runners," as required by claim 33.

As Nakamura fails to teach every limitation of claim 33, Nakamura cannot support a prima facie case of anticipation. The anticipation rejection is thus untenable and should be withdrawn. Claims 35-38 depend on claim 33, and incorporate every limitation thereof. Therefore, Nakamura also fails to teach every limitation of claims 35-38 based on the same reasons discussed relative to claim 33 as well as on their own merits. The anticipation rejection of claims 35-38 is thus untenable and should be withdrawn. Favorable consideration of the claims is respectfully requested.

THE OBVIOUSNESS REJECTION IS TRAVERSED

Claims 1-20 and 22-32 were rejected as being unpatentable over Schroeder et al. in view of Nakamura. The obviousness rejection is respectfully traversed because the cited references cannot support a *prima facie* case of obviousness.

A *prima facie* case of obviousness under 35 U.S.C. § 103 requires three criteria to be met. First, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Second, there must be some suggestion or motivation in the references themselves to modify the reference or to combine reference teachings. Third, there must be a reasonable expectation of success for the modification or combination of references. Further, the teaching or suggestion to make the modification or combination of prior art and the reasonable expectation of success must both be found in the prior art, and not based on Applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). The teachings, motivations or suggestions to combine references must be based on objective evidence of record

and cannot be resolved on subjective belief and unknown authority. *In re Lee*, 277 F.3d 1338, 61 USPQ2d 1430 (Fed. Cir. 2002). The cited references, however, do not meet these requirements.

Claim 1, as amended, recites:

> A method for sensing a moving member, the method comprising the steps of:
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> generating a variable magnetic field by the moving member; and
>
> introducing a first bridge and a second bridge, each adjacent to the moving member, the first bridge and second bridge each comprising a first set of runners and a second set of runners, the first set of runners and the second set of runners being electrically influenced by the magnetic field and each bridge generating at least a direct facing relationship signal and a direct transitional relationship signal as the member moves; the second bridge being located a distance from the first bridge such that a phase difference exists between the signals of the two bridges;
>
> wherein the first set of runners is approximately perpendicular to the second set of runners within each bridge.

Therefore, a method of claim 1 introduces a first bridge and a second bridge to be adjacent to a moving member. Each of the first and second bridge comprises a first set of runners and a second set of runners, wherein the first set of runners is approximately perpendicular to the second set of runners. Furthermore, each bridge generates at least a direct facing relationship signal and a direct transitional relationship signal as the member moves.

In rejecting claim 1, the Office Action asserted that Schroeder et al. and Nakamura, combined, disclose every limitation of the claim. Applicants respectfully disagree. Schroeder et al. is related to using two magnetoresistors positioned adjacent to a wheel to detect the angular position of the wheel. The Examiner correctly recognized that Schroeder et al. fails to teach that each of the first and second bridge has a first and second set of runners, as required by claim 1. In addition, Schroeder et al. fails to disclose that the first set of runners is approximately perpendicular to the second set of runners in each bridge.

Nakamura does not alleviate these deficiencies. Nakamura specifically requires that magnetoresistive element chips 86 and 87 are **aligned** in a direction substantially **perpendicular** to the direction of a magnetization pattern array, and that each of the magnetoresistive element chips comprises four megnetoresistive elements (for example, Abstract; Fig. 4 and col. 4, ln.66-col. 5, ln. 4; Fig. 7 and col. 5, lns. 30-39; col. 6, lns. 9-13; and Figs. 33 and 34), the magnetoresistive element chips are parallel to each other. Therefore, Nakamura fails to teach that "the first set of runners is approximately perpendicular to the second set of runners in each bridge," as required by claim 1.

Since both Schroeder et al. and Nakamura fail to teach that "the first set of runners is approximately perpendicular to the second set of runners in each bridge," as required by claim 1, Schroeder et al. and Nakamura, even combined, do not disclose every limitation of claim 1. The references therefore cannot support a prima facie case of obviousness. The obviousness rejection of claim 1 is untenable and should be withdrawn.

Claims 2-12 depend on claim 1, directly or indirectly, and incorporate every limitation thereof. Therefore, Schroeder et al. and Nakamura, even combined, also fail to teach every limitation of claims 2-12 based on the same reasons discussed relative to claim 1 as well as on their own merits. Hence, the obviousness rejection of claims 2-12 is untenable and should be withdrawn. Favorable consideration of the claims is respectfully requested.

Independent claims 13 and 20 were rejected as being unpatentable over Schroeder et al. in view of Nakamura. Similar to claim 1, claims 13 and 20 require that "the first set of runners is approximately perpendicular to the second set of runners." As discussed relative to claim 1, neither Schroeder et al. nor Nakamura discloses this feature. Consequently, Schroeder et al. and Nakamura, even combined, fail to teach every limitation of claims 13 and 20 based on at least

the same reasons discussed with respect to claim 1 as well as on their own merits. Therefore, Schroeder et al. and Nakamura cannot support a prima facie case of obviousness. Claims 13 and 20 are patentable over the cited references.

Claims 14-19 and 22-32, directly or indirectly, depend on claims 13 and 20, respectively. Thus, claims 14-19 and 22-32 are also patentable over Schroeder et al. and Nakamura based on the same reasons discuss relating to claims 13 and 20, as well as on their own merits. Favorable consideration of the claims is respectfully requested.

NEW CLAIMS 39 AND 40 ARE PATENTABLE

By this Response, claims 39 and 40 are newly added. Claim 39 depends on claim 13, and further describes a step of determining a direction of movement of a moving member that causes the variable magnetic field based on the phase shift between the first output signal and the second output signal. Claim 40 depends on claim 23, and further describes that the computing means is configured to determine a direction of movement of the moving member based on the phase shift between the first output signal and the second output signal. Adequate support for the claims can be found in at least Fig. 7 and paragraphs 24 and 29 of the disclosure.

Claims 39 and 40 depend on claims 13 and 23, respectively, and incorporate every limitation thereof. As discussed earlier, claims 13 and 23 are patentable over the references of record. Therefore, claims 39 and 40 are also patentable over the references of record based on the same reasons discussed relative to claims 13 or 23, as well as on their own merits. The claims are in condition of allowance. An indication of such is respectfully requested.

CONCLUSION

Therefore, the present application claims subject matter patentable over the references of record and is in condition for allowance. Favorable consideration is respectfully requested. If there are any outstanding issues that might be resolved by an interview or an Examiner's amendment, Examiner is requested to call Applicants' attorney at the telephone number shown below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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Recognition under 37 CFR 10.9(b)

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BEFORE THE OFFICE OF ENROLLMENT AND DISCIPLINE
UNITED STATE PATENT AND TRADEMARK OFFICE

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Expires: March 1, 2004

Harry I. Moatz
Director of Enrollment and Discipline